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HUMAN RIGHTS AND SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENTS

Note by the Secretary-General

1. At its forty-sixth session in 1990, the Commission on Human Rights adopted resolution 1990/39 entitled "Use of scientific and technological developments for the promotion and protection of human rights and fundamental freedoms" under agenda item "Human rights and scientific and technological developments".

2. In operative paragraph 1 of resolution 1990/39, the Commission on Human Rights invited the United Nations University, in co-operation with other interested academic research institutions, to submit to the Commission on Human Rights at its forty-seventh session a final report of its study on the positive and negative impacts of scientific and technological developments on human rights and fundamental freedoms, in accordance with Commission resolution 1988/59.

3. By a letter dated 13 December 1990, addressed to the Under-Secretary-General for Human Rights, the United Nations University informed that, in response to the invitation by the Commission on Human Rights, it studied both the positive and negative impacts of scientific and technological developments on human rights and fundamental freedoms, and published its findings as a booklet under the title "Human Rights and Scientific and Technological Development". It further informed that the publication would be available for sale by the United Nations University under United Nations Sales No. E.90.III.A.3. A few copies of the booklet are available for consultation in the Centre for Human Rights (English only).

4. The publication deals with the technological implications for development and human rights in Asia and Latin America, the norm-setting role of the United Nations and the responsibility of the scientific community for promoting human rights. It concludes that science and technology are forces that are now too powerful and too full of ramifications for them to be left to laissez-faire attitudes which permit them to take what direction they please. Therefore, it further concludes that there is an urgent need to guide and channel technology so as to make it an instrument for the furtherance of human rights, particularly in the developing world.

5. The substance and content of the publication is summarized and set forth in its conclusions and recommendations. It is for that very reason and with the permission of the University that they are reproduced below.

"Conclusions and Recommendations */

C.G. Weeramantry

This volume draws together many strands of thought regarding the affirmative role of technology in a world order which will focus increasing attention on human rights.

As we move towards the close of this century and as the next gets into its stride, old concepts of sovereignty will become less rigid. The watertight barriers that insulated nations will become more porous. This gradual transformation of the concept of sovereignty can well be one of the key features of future development in the spheres of international relations and international law.

The universal nature of technology will make it one of the key factors in breaking through state boundaries, for technology does not recognize national frontiers in its multifarious impacts upon life and society. Technology, which will thus play a great role in promoting universalism, will also have other important roles to discharge in making life better for all individuals in that more universalist society. It will at the same time be a powerful catalyst on the international scene and at the level of individual rights, and its role can be both a positive and a negative one. Either way its impact will be extremely powerful, with its capacity for influencing human rights at every level from the micro-level of the individual to the macro-level of international relations.

Since technology will play this key role in making our planet one world and in reducing the barriers that have thus far impeded this concept, it is time for the world community to give thought to directing technology on a course which will maximize its use as an instrument for the furtherance of universally accepted norms of human rights. This study and others have made it clear that science and technology are forces that are now too powerful and too full of ramifications for them to be left to laissez-faire attitudes which permit them to take what direction they please. This study makes it clear that there is much scope for the process of guiding and channelling technology so as to make it an instrument for the furtherance of human rights in the developing world.

The multiple choices of direction that open out with each fresh advance in science make the process of selection a particularly significant one. The developing world, from being a passive recipient of technology tailored to suit other societies, must take a guiding hand in influencing the fashioning of technologies that suit its own needs.

The problem before us is vast and only some selected perspectives can be presented in a single volume such as this. The course we have chosen to follow is the threefold approach of presenting global perspectives, international responses to the problem, and particular studies on some specific problems.

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*/ The United Nations University, 1990. United Nations Sales No. E.90.III.A.3.

In the first category is the conceptual and theoretical study by Dr. Herrera. This stresses the prospective view and the role of normative prospective studies. Dr. Herrera emphasizes the need for considering the problems involved in an inter-disciplinary context, rather than, as is often currently the case, in terms of a single component such as economics, and asking for the support of other disciplines afterwards. He also raises the question of the need to steer ourselves away from the danger of falling into the 'defensive' approach of identifying the possible negative impacts of new technologies. The potential of the new technologies should be taken into account affirmatively in the establishment of socio-economic objectives.

Dr. Herrera provides much food for thought in pointing out that in this field, as in others, we must break out of the fashion of regarding the developing world as a dependent variable of what will happen in the advanced countries. In Dr. Herrera's language, 'a wide array of new options is opened and they offer the third world countries the opportunity to participate actively in the construction of a new and more equitable world order'.

Forecasting is not simply a theoretical exercise but must always be performed as a guide for action. The methodology used for the TPLA Project (Technological Perspective for Latin America) to which Dr. Herrera refers us gives us many insights into the sequence of steps involved in prospective studies, as well as in regard to the criteria of the desirable society which we postulate as our goal. Science and technology should be explicit variables incorporated in the whole integrated process of socio-economic planning, which should take the place of the present dichotomy between socio-economic and R & D Planning.

An important conceptual challenge thrown out in this chapter is the need to work towards the formulation and elaboration of the right of participation in all social decisions and of the right of access to intellectually creative work.

An important aspect to be borne in mind in addressing the question of turning technology to the furtherance of human rights is Dr. Herrera's observation that our aim should be to close the technological gap not in absolute terms but in the context of the required socio-economic and institutional adaptations. Too often we are led astray from the practical issue at hand by the insurmountable difficulties of striving to close this gap in absolute terms. The apparent impossibility of that task should not prevent us from attaining immensely valuable results through adaptations resulting from thoughtful interdisciplinary studies.

Dr. Herrera's analysis, although presented as a view from the third world, has a broader validity which makes it relevant to all societies.

Dr. Chamarik pursues this scheme more specifically in relation to the third world, emphasizing the concept of self-reliance in science and technology. The most pertinent sphere for the application of this principle in relation to developing societies is that of agriculture.

Dr. Chamarik steers us away from reliance on technological decisions taken for third world countries by élitist groups in those countries. The needs and wishes of those élitist groups may often be at variance with those of the grass roots, and if one is thinking of furthering human rights in a

manner meaningful to the bulk of the people in those societies, such élitist decision-making is not the answer. It leads to the pursuit of such aims as accelerated economic development towards industrialization. Such an approach can lead to the pitfalls of dependence and subordination.

Agricultural societies have never been without technological knowledge and inventiveness. Their traditional means of learning and skills in technological adaptation and innovation need not be minimized or ignored, for they are directly related to a people's real and relevant needs and environmental conditions.

From the standpoint of human and social progress, the modern and traditional must be looked upon as complementary to each other.

Conditions of self-reliant development are pursued through the Self-reliance Study of six Asian countries conducted under the aegis of the United Nations University. This leads to a shared development perspective rather than a solution which seeks self-sufficiency for each country exclusive of all others.

The various ingredients of technological self-reliance are interrelated. These involve principally an optimal use of local resources, the development of indigenous human resources and the development of grass-roots institutions.

Dr. Chamarik concludes that the real solution lies in the technological and productive capability within the rural communities themselves. The choice and assessment of technology, instead of being imposed or forced upon them, must be made by and within the rural communities themselves.

An important feature of Dr. Chamarik's analysis is that the socio-cultural factors necessary for technological self-reliance will be impossible to achieve without favourable politico-economic conditions. Lack of autonomy in the decision-making process, which has been forced upon many traditional Asian societies, needs to be revised, after centuries of dependence and underdevelopment, through a process of revitalization in the politico-economic sphere.

There is no inherent incompatibility between modern and traditional technology. The path of future development can be changed for the better by human intervention. Modern technology, in a symbiotic relationship with the traditional, must supplement rather than supplant indigenous technology. In short, the question is not whether Western science should be made use of, but how, on what conditions, and with what objectives.

The third essay in the series of global perspectives is Dr. Farer's examination of human rights and scientific and technological progress from a Western perspective.

Dr. Farer supplies a corrective to any tendency to think of technology and human rights only in terms of technologies that produce obvious impacts upon group-oriented third world ways of life. As Dr. Farer observes, other studies in this volume, which approach problems of technology and human rights from the standpoint of the third world, do not discount the importance of individual rights and individual autonomy.

One cannot lose sight either of the fact that within third world societies there are considerable groups whose attitudes and values run very close to those of the individually oriented approaches of the West. Dr. Chamarik, for example, has dwelt at some length on the dominance of such groups within developing societies.

Since there is an interrelatedness of human rights which does not permit the isolation of one group from another, it is important to our sense of perspective to consider the impact on human rights of some technologies which may apparently have relevance only to societies of the West.

There is no way of eliminating a concern with those technologies in reviewing the impact of technology on any section of the world's population. Technology knows no boundaries of nationality, class, or creed, and sooner or later a technology which is thought to be pertinent only to one section of the global population makes its impact upon another, however sophisticated or exclusive that technology may appear to be.

Dr. Farer selects three areas of technology for special consideration - nuclear weapons, procreation and child-rearing, and privacy.

All of these, though apparently far from the concerns of the developing world, affect it intensely. In relation to nuclear weapons there is no question that they tear the seamless fabric of universal human rights so grievously as to affect the basic human rights of all people everywhere. We cannot talk meaningfully of using technology for the service of third world peoples without addressing the problem of the conceptual framework underlying the philosophy that nuclear weapons are permissible in any circumstances. Unless that philosophy can be countered it is academic to address any other questions of using science and technology in the service of human rights.

The first problem Dr. Farer addresses is therefore as much a problem of the developing world as of any other segment of the world community.

Procreation and child-rearing by their very nature impinge intimately on the humanness and dignity of every human being. If there are potentially dangerous uses they are potentially dangerous everywhere, as for example one of the unorthodox uses Dr. Farer mentions, namely their use in imaginable totalitarian political and social settings. If there are potentially beneficial uses, they are potentially beneficial everywhere and one would be rash to postulate any time interval between their uses in developing and developed societies. Moreover, even if they do not have a sense of immediacy for third world societies, they have an immediate impact upon the concept of human personality.

The third technology, that which bears on privacy, has obvious importance for all societies, developing and developed alike, and indeed their potential uses for the former are far-reaching indeed. The capacity to deliver information from a source located anywhere on the globe to receivers in any other part of the globe gives this technology the most far-reaching potential for service.

Dr. Farer's article demonstrates also the inaccuracy of right-wing Western polemical attempts to argue that a fundamental difference exists over

the centrality of human freedom between North and South and that the discourse of human rights is used by the latter for effecting a transfer of resources from North to South.

These global overviews conclude the second part of this volume. We move from there to the international response, the subject of part 3.

We have moved a long way from the early United Nations attempts to harness science and technology for the benefit of the developing world.

The initial attempt, the United Nations's World Conference on the Application of Science and Technology in Less Developed Areas (UNCSAT), held in Geneva from 4 to 20 February 1963, brought together 1,665 participants from 96 countries, as well as a multitude of international organizations. However, to quote the words of one commentator (Professor Volker Rittberger in 'Development and Co-operation' (German Foundation for International Development, vol. 3 (1979): 14)),

> 'This world conference resembled more a global science and technology market than a consulting and negotiating forum to promote concrete development programmes. Accordingly this world conference - in contrast to the world conferences of the seventies - neither passed a declaration of intent nor an action programme. Demands of individual developing countries to create a new organization within the system of the UN which would specialize in the promotion of the application of science and technology for development purposes fell on deaf ears.'

In the quarter-century that has elapsed there has been much serious consideration of the problem from both theoretical and practical standpoints. While developmental aspects have loomed large, it is seen that development is only one segment of the much broader frame of human rights within which the problem must be considered. Various action programmes have been set up and institutional mechanisms set in place. In 1971 the Advisory Council for the Application of Science and Technology to Development (ACAST) published a 'World Plan of Action for the Application of Science and Technology to Development'. Numerous international declarations have ensued. At the thirty-first session of the General Assembly in 1976, a formal resolution was passed calling for the establishment of a United Nations Committee on Science and Technology for Development (UNCSTAD). All these topics are the subject of continuing discussion and ongoing action programmes.

Dr. Yamane's chapter on the Normative Response of the International Community provides an essential conceptual background to this study by tracing the evolution of the instruments which have been fashioned to cope with human rights problems caused by scientific and technological progress. As a prelude to this, Dr. Yamane goes through the important process of a stocktaking of the human rights which are particularly in danger of erosion by scientific and technological progress.

The catalogue of rights that might be directly affected is considerable, and when one adds to this a list of rights that might be adversely influenced, the list is such as to cause concern, for a large section of the spectrum of human rights is under direct or potential attack.

The international instruments which are a means of protection against the abuse of science and technology are both general and specific. Specific instruments relate to the right to life, the right to physical and spiritual integrity, the right to privacy, and the right to information.

Dr. Yamane also lists the instruments fashioned as a means to assure positive uses of scientific and technological progress for advancing human rights, dividing them again into instruments of a general and a specific character. In the latter category are those which cover the right to benefit from scientific progress and the right to an adequate standard of living.

Dr. Yamane points out that the major preoccupation of the United Nations in dealing with the impact of science and technology on human rights has turned to economic development, coinciding with the ongoing effort of the international community to establish a new international economic order. The Charter of Economic Rights and Duties of States of 1974 confers important rights and imposes important duties upon states, both developing and developed. An important duty is the duty of the developed countries to co-operate with the developing countries in the evolution of scientific and technological infrastructures and other activities so as to expand the economies of the latter group.

Developments such as these open up areas for important conceptual debate. In particular, calls for the active intervention of the state in many spheres of life clash with the liberal-individualistic approach to human rights. Dr. Yamane rather laments the effort spent on superficial conceptual compromises rather than on devising effective ways and means of implementing human rights. She points out that at the same time further conceptual fuzziness is introduced by the indiscriminate proclaiming of rights of all kinds. Perhaps a way out of this impasse is, she suggests, a specification of the areas for implementing different categories of human rights and a dissociation from the broad general issues of economic development such as technology transfer and exploitation of natural resources.

This call for a sharpness of focus in our thinking about human rights is timely, for overenthusiasm can damage the entire cause by blurring conceptual clarity. We need to develop human rights and at the same time preserve their conceptual integrity. Expansion of categories which is too rapid or indiscriminate can undermine the foundations of the basic conceptual structure.

Conceptual development in the field of human rights is shown by Dr. Yamane to be haphazard. One is reminded of the way in which the common law system was built up through 'a wilderness of single instances' rather than through a cohesive body of unifying principles. Later, the text writers got to work on this unwieldy mass of material and reduced it to some form of coherence and logical consistency. Perhaps the field of human rights awaits such pioneering academic labour. Perhaps, as Dr. Yamane suggests, the crucial issue centres on the control of information, for, without information, considered decisions on matters of science and technology are impossible. Her call for the elaboration of an international instrument which will reinforce the right to information could be a major conceptual outcome of this study.

With the benefit of the conceptual insights resulting from Dr. Yamane's study we pass on to Dr. Kubota's careful analysis of the institutional response.

Having traced the steps leading, especially through Japanese and Yugoslav initiatives, to the present project, he points out that the question of the effect of scientific and technological developments on human rights was not considered in detail until the International Conference on Human Rights in 1968. This resulted in the Proclamation of Tehran. The General Assembly by its resolution 2450 (XVIII) of 19 December 1968 invited the Secretary-General to undertake detailed studies in such areas as privacy in the light of advances in recording technologies and the protection of the human personality in the light of advances in biology, medicine and biochemistry.

From that initial stage Dr. Kubota takes us in detail through the developments, studies, and reports that emerged during the period 1971-1987. A landmark event was the General Assembly's 1975 Declaration on the Use of Scientific and Technological Progress in the Interests of Peace and for the Benefit of Mankind, which the Commission on Human Rights, in its resolution 10 B (XXXIII), described as a guide for its future work. The Commission on Human Rights also emphasized that States should take account of the provisions and principles contained in that Declaration. Major reports prepared by the Secretary-General and the specialized agencies concerned are carefully noted. The growing volume of United Nations documentation has reached such proportions that some guidance is required through this mass of material, and Dr. Kubota's chapter provides the researcher with the assurance that he has not lost sight of significant documentation in this field.

Dr. Kubota, while not denying the importance of the work undertaken to date, emphasizes the need for guidelines and rules of conduct in scientific and technological activities. These guidelines should preserve 'the balance which should be established between scientific and technological progress and the intellectual, spiritual, cultural and moral advancement of humanity'.

The need for information emerges strongly from Dr. Kubota's article as it does from some of the other contributions in this book. This is because there is a need for everyone to defend himself or herself against the negative effects of science and technology, and to do so one needs access to information on potential dangers. Dr. Kubota therefore sees freedom of information as lying at the heart of the protection and promotion of human rights.

The decision-making process, the appellate process, the legislative process, and the administrative process all require this free flow of information. Dr. Kubota notes in this regard the efforts of the United Nations Educational, Scientific and Cultural Organization and the International Social Science Council in this field. These are important pioneering efforts which need to be more widely known.

Dr. Kubota argues that policies, approaches and attitudes which create or maintain an artifical dichotomy between legal and human rights considerations and scientific and technological activities should be abandoned or rectified. Such 'artificial compartmentalization' no doubt colours the thinking of many decision makers. Dr. Kubota sees the establishing of new guidelines as a means of facilitating the transfer of scientific and technological activities from the purely technological and scientific arena into the legal and political arena.

This is important work and is in line with the series of projects of the United Nations University on scientific and technological developments, which have the common objective of setting forth guidelines enabling scientific and technological policies to make a maximum contribution to human and social development needs. The current project, as Dr. Kubota points out, represents the first occasion on which the United Nations University has decided to respond to an invitation by a United Nations human rights body to launch a project of this kind. It is therefore specially important that it should bring about new and fruitful achievements in this field.

Part 4 deals with specific problems, of which the structure of the scientific enterprise, development and human rights, and the environmental problem have been selected as three important areas worthy of special attention.

Any study of the ways of turning science and technology to public advantage needs to address the question of the structure of the scientific enterprise, for scientific decision-making cannot be undertaken without this knowledge. The scientific enterprise has a logic and a scheme of its own.

Dr. Nakayama undertakes this study in his contribution to this volume. By taking us through the various stages in the production of industrial science and defence science he assists us in focusing attention on areas of secrecy and impenetrability. Much though we may desire to make the human rights influence felt in these areas of decision-making, there are very real obstacles stemming from considerations of corporate profit or strategic secrecy, which make the social assessment of science difficult at many stages of production. Assessment is difficult enough. Making an impact on the processes of decision is even more difficult.

The theoretical openness of scientific knowledge and its theoretically universal nature thus tend to be negated across a considerable spectrum of the scientific enterprise. This amounts in effect to a denial to scientists of basic human rights of dissemination and discussion of scientific information. The impact on scientists' rights is more far-reaching than this, for it touches human rights in other ways as well, including questions of hazards to which scientists are exposed in consequence of such secrecy. The public too are the sufferers, for the damaging effect upon the environment of certain scientific processes is not known to the public owing to such secrecy, and hence is not the subject of preventive action.

Service science was to a large extent free of many of these obstacles, but many aspects of service science are being industrialized now. Even in such an area of medical service as organ transplants, the production of artificial organs is rapidly becoming big business.

All of this raises significant conceptual problems. Dr. Nakayama brings up the important question of the disadvantaged position in scientific decision-making of those who lack the necessary knowledge - and that goes for most of us. Do we have a right not to be at a disadvantage because of our ignorance?

The answer currently tends to be along the lines that ignorance must be cured by information. If people continue to remain ignorant they must pay the price for this. But the proliferation of knowledge is occurring on such a

scale that it is idle to postulate a duty to acquire knowledge in every area of technology that may impinge on our lives. The degree to which individuals are disadvantaged by ignorance will grow in every society, and especially in the conditions of the developing world the danger is already acute.

Inaccessibility to information and maldistribution of information are vital areas needing attention if technology is to be turned in the direction of service to the community. Information pollution, as Dr. Nakayama terms it, is a real danger present in every society. It is a growing danger everywhere and in present world conditions is one of the acutest problems that third-world populations face.

Human Rights, Technology and Development is the second selected topic in part 4. This essay, written by the editor, seeks to explore the impact of technology in the light of the three principal elements involved in the General Assembly's Resolution of 1984 on the right to development: participation, contribution and enjoyment.

In order to increase participation in scientific decision-making one has to explore the decisional routes through which new technology enters a developing country. The decision is often taken under pressures external to the developing country in question, and research is needed to ascertain with more precision the factors influencing decisions and the points at which such decisions are taken.

Such considerations point again to the need for more diffusion of information regarding both the decisional factors involved and the alternative technologies available.

Technology surveillance, early recognition and alert systems, international exchanges of technological assessment, and technical co-operation among developing countries all need to be stepped up. An important part of the next stage of research upon the current project may well be an investigation of the means by which such institutional mechanisms can be set up. Whether such centres are set up nationally or regionally, there needs to be a network of them spanning the entire spectrum of developing countries. Some countries may lack the necessary resources for all these purposes, but the paucity of their resources is no reason for the denial to their citizens of their undoubted human rights, which will be impaired by the lack of such mechanisms. This is therefore an important area for regional and international co-operation, for if human rights are involved - as this volume seeks to demonstrate - there can be no excuse for the global community's neglect of its obligation to assist such countries in this essential task.

As with decision-making, so also with contribution to the technology itself, the scope for third-world participation must be increased. We need research to identify the optimum points for such input and to maximize their availability. Participation in product designing, the multifarious stages involved in joint routine enterprises and the legal considerations associated therewith, and education for participation, as well as appropriate technology, need to be examined from this point of view. The formal network for the distribution of information does not reach the grass-roots and other methods must be explored.

The third leg of the tripod - enjoyment - is perhaps the most important. Much technology which is suitable does not reach the bulk of the people who should be enjoying it. This is indeed the greatest challenge in the process of making technology serve the purpose of human rights. It necessitates an examination, among other things, of the social responsibilities of scientists and of the many ramifications of information technology. Although information technology should be a means of bending technology to the service of human rights, it often tends to polarize the developing and developed worlds. Moreover, the computer is not merely a means of storage and dissemination of information but also an active tool in the generation of new technology.

Other areas of vital importance, because they obstruct the receipt of new technology, are the armaments trade, the politics of food, and the inadequacies of legal concepts and structures moulded to the needs and priorities of the developed world. These are briefly surveyed.

The chapter ends with some desiderata which will help in the achievement of the overall purpose of this project.

The problems of the environment are largely the result of technological 'advance'. They damage human rights at every level. If we are to turn technology to the affirmative science of human rights, one of the most vital areas to which we should be devoting our attention is the use of technology to repair or prevent environmental damage.

Dr. Vukasovic addresses this problem in a chapter which probes the interdependence between the environmental issue and all human rights - the rights to life and health and all other social, economic, cultural, political and civil rights. Not without reason is environmental law proving to be one of the most dynamic areas of both municipal and international law.

Environmental rights can be viewed both as collective and as individual rights. Thus, while for example the African Charter speaks of environmental rights as rights belonging to peoples, the Declaration of the Stockholm Conference on the Human Environment speaks of environmental rights also as individual rights. It is thus clearly a right belonging to both individuals and groups. This raises definitional problems as well as problems of collision of rights, and necessitates the creation of institutional machinery not only at the level of the United Nations but at regional and subregional levels.

Dr. Vukasovic sees it as essential to the whole field of development of these newly emergent rights that they be more precisely defined and more efficiently regulated. This is an essential step in the promotion of human rights.

Apart from such conceptual and structural development there are numerous areas of great potential for technology to be harnessed in the service of environmental human rights. Some of these technologies exist in the military sphere and need to be used for developmental purposes. The use of space technology for remote sensing of the earth is an example; the technology for combating and preventing damage caused by ultra-hazardous activities is another.

Attention will need to be directed into areas of prevention and regulation, and this necessitates both the development of rights to information and duties of disclosure. People have the right to know the real state of the environment, and secrecy in matters critical for human existence needs to be counteracted.

Here again, developing countries face a special problem from lack of personnel as well as of regulation structures. This calls for co-operation from the developed world. Technology assessment at national and international levels is vital but is not easy to achieve without such co-operation. Decision-making concerning technological policy must not be made in closed governmental circles. There must be voluntary and democratic involvement of people, improved international relations through human rights co-operation, a development of international humanitarian law, and a linkage of environmental law with concepts of sustainable development.

Within the broad contours mapped out in these chapters a number of potential research projects are contained. There is no doubt that the topic of this book offers one of the most vital areas for the development of human rights in this period when science and technology dominate nearly every aspect of our lives.

Seeing the importance of the topic and the multitude of areas of research lying within it, an informed choice is required regarding the next stage of this enterprise.

There is no doubt that it needs to proceed to the stage of more specific investigations of certain selected areas of immediate relevance to developing societies.

Such researches could be in the area of an exploration of the politico-economic decision-making process, which needs attention if self-reliance in technological decision-making is to be stimulated. It may necessitate a research project on existing structures of technological decision-making in developing societies. It may call for an investigation of developmental goals which those societies may pursue. It may also travel beyond individual societies into the areas of co-operation among developing societies, generating broader principles than studies of particular countries in isolation. There is an immense wealth of research topics awaiting attention. The task of informed decision in the midst of this embarrassment of riches is not an easy one.

But such researches are by themselves inadequate. We need also an investigation of the multitude of new structures, national and international, which will need to be devised or improved if the ideals considered in this book are to be implemented.

Here again the possibilities revealed by our study are multifarious. Structures that look back to the past so that we can learn from former mistakes, and structures which look forward to the future, grappling with problems and technologies we can only dimly understand, lie at the extremes of a spectrum of options which necessitate a considered choice.

Especially within developing societies, where the need for surveillance or regulatory mechanisms is most urgent and acute, there is a dearth or a total absence of such mechanisms. Much thought needs to be given to this problem with a degree of special urgency, for as long as such structures are not in place every advantage will be taken of their absence to introduce technologies in the interests of private profit which impede the flow of human rights benefits to the bulk of the populations of developing nations.

We have dealt thus far with the broad socio-political setting and with the new institutional structures required.

However, the suggestions in this volume do not end there. We need also further revision and development, on the conceptual plane, of the human rights themselves. New formulations of rights and new refinements of existing rights will need consideration. Examples are the right of access to intellectually creative work and the right of participation in social decisions.

Moreover, new approaches will need to be made to the consideration of such concepts as the right to property (an intellectual property), the right to freedom of contract, and the right to academic freedom. There is work here on a theoretical plane for jurists and for human rights specialists.

But structures and concepts are of no value unless there are also personnel to make them work in directions of maximum value. Here we have the need to train personnel for all the purposes and procedures that may emerge from this study. Among them are the training of personnel to man the new structures, the carrying of the messages emerging from this study to the grass-roots where they must be implemented, education in new attitudes of self-reliance and of activism to overcome traditional passivity and resignation to the power and inevitability of technology. New cadres of third-world personnel must emerge imbued with the resolve that technology can be harnessed in the service of their communities and their socio-economic goals.

We commend all these possibilities to the Human Rights Commission with the confidence that an informed choice will be made for the next research stage in this project. As we prepare to celebrate the fortieth anniversary of the Universal Declaration of Human Rights, there could be few projects worthier of continuing research than the study of the ways in which the most powerful force of this age can be turned to the service of its most powerful ideological declaration."